

REMARKS

This is a full and timely response to the outstanding final Office Action mailed June 2, 2004. Upon entry of the amendments in this response, claims 1 – 22 are pending. In particular, Applicant has added claims 21 and 22, has amended claims 1 – 3, 6 – 8, 10, 13, 14, 16, 19 and 20. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

Indication of Allowable Subject Matter

The Office Action indicates that claims 13 and 14 are objected to as being dependent upon a rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim any intervening claims. As set forth above, Applicant has rewritten claims 13 and 14 and respectfully asserts that these claims are in condition for allowance.

Rejections Under 35 U.S.C. §102

The Office Action indicates that claims 1 – 8, 10 – 12 and 15 - 17 stand rejected under 35 U.S.C. §102(b) as being anticipated by *Pfeiffer*. Applicant respectfully traverses the rejection.

In this regard, *Pfeiffer* '305 generally relates to a method and apparatus for controlling alignment of an electron beam of a variable shape. In particular, *Pfeiffer* '305 discloses:

In U.S. Pat. No. 4,243,866 to Pfeiffer et al, there is shown a method and apparatus for forming a variable size electron beam. This enables various size areas of the target to have the electron beam applied thereto to form a desired configuration in the target. *For example, the target may be a semiconductor wafer in which it is desired to form integrated circuits with the pattern areas being formed by the use of resist.*

(*Pfeiffer* '305 at column 1, lines 12 – 19). (Emphasis Added).

Additionally, *Pfeiffer* '305 discloses:

The apparatus of the present invention is an improvement of the apparatus of the aforesaid Pfeiffer et al patent in that it is not necessary to make adjustments of the shaping signals several times a day. Thus, the apparatus of the present invention requires only a daily check, which could be made at the start of each day of operation, of the spot with adjustment being required every several days or weeks to obtain the desired source image.

(*Pfeiffer* '305 at column 1, lines 12 – 19). (Emphasis Added).

Based on the representative teachings of *Pfeiffer* '305 above, this reference does not involve the use of an electron emitter for altering the structural state of a storage area to represent information stored in the storage area as is generally recited in the pending claims. Likewise is the case for *Pfeiffer* '271.

With respect to *Pfeiffer* '271, that reference discloses:

It is therefore an object of the present invention to provide a method of eliminating the instabilities due to lateral beam drift *in electron optical instruments*.

It is another object of the invention to provide an apparatus for automatically aligning the electron beam *in an electron optical instrument* to eliminate lateral beam drift caused by mechanical, thermal or electrostatic influences.

It is a further object of this invention to provide, *within a system which utilizes an electron beam to directly expose the resist on a semiconductor wafer in the process of manufacturing semiconductor devices*, an alignment servo for maintaining the electron beam centering over the blanking aperture.

(*Pfeiffer* '271 at column 1, line 67 to column 2, line 13). (Emphasis Added).

Based on the representative teachings of *Pfeiffer* '271 above, this reference also does not involve the use of an electron emitter for altering the structural state of a storage area to represent information stored in the storage area as is generally recited in the pending claims.

With reference to the pending claims, Applicant has amended claim 1 to recite:

1. A method for controlling the voltage on a lens of an electron emitting device, the method comprising:

providing a storage medium having a storage area, a structural state of the storage area being alterable by a beam of electrons emitted by the electron emitting device to represent information stored in the storage area;

supplying an emitter voltage to an electron emitter in the electron emitting device, wherein a current amplitude is established;
sensing the emitter voltage on the electron emitter;

supplying a non-inverted input voltage to an amplifier that follows the emitter voltage; and
providing an amplifier output voltage from the amplifier to the lens, wherein the amplifier output voltage corresponds to the emitter voltage at the electron emitter.

(Emphasis Added).

Applicant respectfully asserts that *Pfeiffer* ‘305 is legally deficient for the purpose of anticipating claim 1. In particular, Applicant respectfully asserts that *Pfeiffer* ‘305 does not teach or reasonably suggest at least the features/limitations emphasized above in claim 1. Therefore, Applicant respectfully asserts that claim 1 is in condition for allowance.

Since claims 2 - 8 are dependent claims that incorporate all the features/limitations of claim 1, Applicant respectfully asserts that these claims also are in condition for allowance. Additionally, these claims recite other features/limitations that can serve as an independent basis for patentability.

With respect to claim 10, Applicant has amended that claim to recite:

10. A storage device comprising:
 - an electron emitter;
 - a storage medium having a storage area, a structural state of the storage area being alterable by a beam of electrons emitted by the electron emitter to represent information stored in the storage area;*
 - a lens to adjust the focal point of the beam of electrons emitted from the electron emitter;
 - a sensing switch coupled to the electron emitter to sense voltage on the electron emitter;
 - an amplifier coupled to the sensing switch that follows the voltage on the electron emitter, wherein the sensing switch is coupled to an input of the amplifier and the output of the amplifier is coupled to the lens; and
 - wherein the output of the amplifier drives the voltage on the lens.

(Emphasis Added).

Applicant respectfully asserts that *Pfeiffer* ‘305 is legally deficient for the purpose of anticipating claim 10. In particular, Applicant respectfully asserts that *Pfeiffer* ‘305 does not teach or reasonably suggest at least the features/limitations emphasized above in claim 10. Therefore, Applicant respectfully asserts that claim 10 is in condition for allowance.

Since claims 11, 12 and 15 are dependent claims that incorporate all the features/limitations of claim 10, Applicant respectfully asserts that these claims also are in condition for allowance. Additionally, these claims recite other features/limitations that can serve as an independent basis for patentability.

With respect to claim 16, Applicant has amended that claim to recite:

16. An electron emitting storage device, comprising:
 - emitter means for emitting electrons;
 - storage means for storing information, the storage means exhibiting a structural state that is selectively alterable by electrons emitted by the emitter means;
 - lens means for focusing emitted electrons from the emitter means into an optimized focal point on the storage means;
 - means for sensing voltage applied to the emitter means;
 - amplifier means for providing an output voltage to the lens means that is relative to the voltage applied to the emitter means; and
 - means for adjusting input voltage to the amplifier means so that the output voltage to the lens means changes.

(Emphasis Added).

Applicant respectfully asserts that *Pfeiffer* '305 is legally deficient for the purpose of anticipating claim 16. In particular, Applicant respectfully asserts that *Pfeiffer* '305 does not teach or reasonably suggest at least the features/limitations emphasized above in claim 16. Therefore, Applicant respectfully asserts that claim 16 is in condition for allowance.

Since claim 17 is a dependent claim that incorporates all the features/limitations of claim 16, Applicant respectfully asserts that this claim also is in condition for allowance. Additionally, this claim recites other features/limitations that can serve as an independent basis for patentability.

Rejections Under 35 U.S.C. §103

The Office Action indicates that claims 9 and 18 - 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Pfeiffer* '305 in view of *Notte*. Applicant respectfully traverses the rejection.

With respect to claim 9, Applicant respectfully notes that this claim is a dependent claims that incorporates all the features/limitations of claim 1. As set forth in the discussion above, *Pfeiffer* '305 does not teach or reasonably suggest all the features/limitations recited in claim 1. *Notte* does not rectify this deficiency.

In this regard, *Notte* generally relates to a magnetic lens configured to apply a magnetic field to a charged particle beam is provided. In particular, *Notte* discloses:

This invention generally relates to a magnetic lens that may be configured to apply a magnetic field to a charged particle beam. ***Certain embodiments relate to a sectored magnetic lens that may be incorporated into a scanning electron microscope system.***

(*Notte* at column 1, lines 9 – 14). (Emphasis Added).

Based on the representative teachings of *Notte* above, this reference also does not involve the use of an electron emitter for altering the structural state of a storage area to represent information stored in the storage area. Thus, Applicant respectfully asserts that the cited art, either individually or in combination, is legally deficient for the purpose of rendering claim 9 unpatentable. In particular, Applicant respectfully asserts that none of the references or combinations thereof teaches or reasonably suggests at least the features/limitations emphasized above in claim 1, from which claim 9 depends. Therefore, for at least this reason, Applicant respectfully asserts that claim 9 is in condition for allowance.

With respect to claim 18, Applicant respectfully notes that this claim is a dependent claim that incorporates all the features/limitations of claim 16. As set forth in the discussion above, *Pfeiffer* '305 does not teach or reasonably suggest all the features/limitations recited in claim 16. *Notte* also does not rectify this deficiency. Thus, Applicant respectfully asserts that the cited art, either individually or in combination, is legally deficient for the purpose of rendering claim 18 unpatentable. In particular, Applicant respectfully asserts that none of the references or combinations thereof teaches or reasonably suggests at least the

features/limitations emphasized above in claim 16, from which claim 18 depends. Therefore, for at least this reason, Applicant respectfully asserts that claim 18 is in condition for allowance.

With respect to claim 19, Applicant has amended that claim to recite:

19. A method for controlling the voltage on a lens of an electron emitting device, the method comprising:

supplying an emitter voltage to an electron emitter in the electron emitting device;

providing a storage medium having a storage area, a structural state of the storage area being alterable by a beam of electrons emitted by the electron emitting device to represent information stored in the storage area;

sensing the emitter voltage on the electron emitter;

summing the sensed emitter voltage and a desired lens voltage; and

providing a voltage output that is the sum of the emitter voltage and the desired lens voltage to the lens of the electron emitting device.

(Emphasis Added).

Applicant respectfully asserts that the cited art, either individually or in combination, is legally deficient for the purpose of rendering claim 19 unpatentable. In particular, Applicant respectfully asserts that none of the references or combinations thereof teaches or reasonably suggests at least the features/limitations emphasized above in claim 19.

Therefore, Applicant respectfully asserts that claim 19 is in condition for allowance.

Since claim 20 is a dependent claim that incorporates all the features/limitations of claim 19, Applicant respectfully asserts that this claim also is in condition for allowance. Additionally, this claim recites other features/limitations that can serve as an independent basis for patentability.

Newly Added Claims

Upon entry of the amendments in this response, Applicant has added new claims 21 and 22. Applicant respectfully asserts that these claims are in condition for allowance for at least the reason that each of these claims is a dependent claim that incorporates all the

features/limitations of claim 1, the allowability of which is described above. Additionally, these claims recite other features/limitations that can serve as an independent basis for patentability.

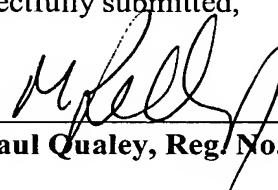
Cited Art Made of Record

The cited art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicant respectfully submits that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that the pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,


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